

2771-260-CIP DIV-RCE

Section I. (Amendments to the Claims and Listing of Claims)

Please cancel claims 1-4, 7, 13-22, 26, 35, 36, 38, 39 and 42-45.

Claims 6, 10, 12, 24-25, 31-34, 40 and 41 remain and have been allowed.

A complete listing of the claims 1-45 is set out below.

1-5. (Cancelled)

6. (Previously presented) The method according to claim 31, wherein the coordinating Lewis base is selected from the group consisting of alkene, diene, cycloalkene, cyclodiene, cyclooctatetraene, alkyne, substituted alkyne (symmetrical or asymmetrical), amine, diamine, triamine, tetraamine, ether, diglyme, triglyme, tetraglyme, phosphine, carbonyl, dialkyl sulfide, vinyltrimethylsilane, and allyltrimethylsilane.

7.-9. (Cancelled)

10. (Previously presented) The method according to claim 32, wherein the coordinating Lewis base is selected from the group consisting of alkene, diene, cycloalkene, cyclodiene, cyclooctatetraene, alkyne, substituted alkyne (symmetrical or asymmetrical), amine, diamine, triamine, tetraamine, ether, diglyme, triglyme, tetraglyme, phosphine, carbonyl, dialkyl sulfide, vinyltrimethylsilane, and allyltrimethylsilane.

11. (Cancelled)

12. (Previously presented) The method according to claim 33, wherein the coordinating Lewis base is selected from the group consisting of alkene, diene, cycloalkene, cyclodiene, cyclooctatetraene, alkyne, substituted alkyne (symmetrical or asymmetrical), amine, diamine, triamine, tetraamine, ether, diglyme, triglyme, tetraglyme, phosphine, carbonyl, dialkyl sulfide, vinyltrimethylsilane, and allyltrimethylsilane.

13-23. (Canceled)

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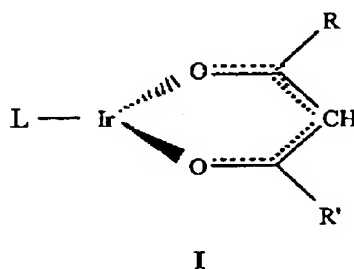
24. (Previously presented) The method according to claim 34, wherein the coordinating Lewis base is selected from the group consisting of alkene, diene, cycloalkene, cyclodiene, cyclooctatetraene, alkyne, substituted alkyne (symmetrical or asymmetrical), amine, diamine, triamine, tetraamine, ether, diglyme, triglyme, tetraglyme, phosphine, carbonyl, dialkyl sulfide, vinyltrimethylsilane, and allyltrimethylsilane.

25. (Previously presented) The method according to claim 34, wherein the oxidizing ambient environment comprises air.

26.-30. (Cancelled)

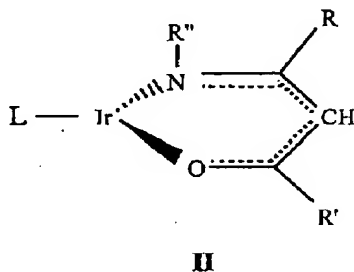
31. (Previously presented) A method of forming an iridium-containing film on a substrate, comprising use of an organic solvent solution, said organic solvent solution comprising an iridium-containing precursor that is decomposable to deposit iridium on the substrate, said method comprising decomposing the precursor from said solution and depositing iridium on the substrate in an oxidizing ambient environment, wherein the precursor comprises a composition selected from the group consisting of:

Lewis base stabilized Ir(I) β -diketonates of formula I:



wherein R and R' may be alike or different and may be H, aryl, perfluoroaryl, C₁ - C₆ alkyl, or C₁ - C₆ perfluoroalkyl, and L is a coordinating Lewis base; and

Lewis base stabilized Ir(I) β -ketoiminates of formula II:

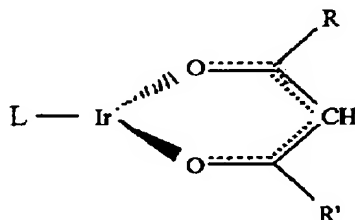


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wherein R, R', and R'' are the same or different, and are independently selected from the group consisting of H, aryl, perfluoroaryl, C₁ - C₆ alkyl, or C₁ - C₆ perfluoroalkyl, and L is a coordinating Lewis base.

32. (Previously presented) A method of forming an iridium-containing film on a substrate, from an iridium-containing precursor thereof that is decomposable to deposit iridium on the substrate, said method comprising decomposing the precursor and depositing iridium on the substrate in an oxidizing ambient environment, wherein the precursor comprises a composition selected from the group consisting of:

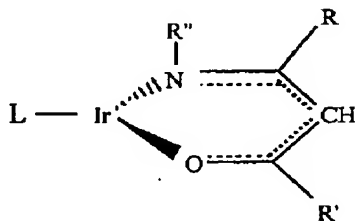
Lewis base stabilized Ir(I) β -diketonates of formula I:



wherein R and R' may be alike or different and may be H, aryl, perfluoroaryl, C₂ - C₆ alkyl, or C₁ - C₆ perfluoroalkyl, and L is a coordinating Lewis base.

33. (Previously presented) A method of forming an iridium-containing film on a substrate, from an iridium-containing precursor thereof that is decomposable to deposit iridium on the substrate, said method comprising decomposing the precursor and depositing iridium on the substrate in an oxidizing ambient environment, wherein the precursor comprises a composition selected from the group consisting of:

Lewis base stabilized Ir(I) β -ketoiminates of formula II:



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wherein R, R', and R'' are the same or different, and are independently selected from the group consisting of H, aryl, perfluoroaryl, C₁ - C₆ alkyl, or C₁ - C₆ perfluoroalkyl, and L is a coordinating Lewis base.

34. (Previously presented) A method of forming a microelectronic device or precursor structure on a substrate, including an electrode operatively associated with a high-temperature dielectric or ferroelectric material deposited thereover, said method comprising:

(A) forming an iridium-containing film on the substrate, comprising use of an organic solvent solution, said organic solvent solution comprising an iridium-containing precursor which is decomposable to deposit iridium on the substrate, comprising:

(i) decomposing the precursor from said solution and depositing iridium on the substrate in an oxidizing ambient environment; and

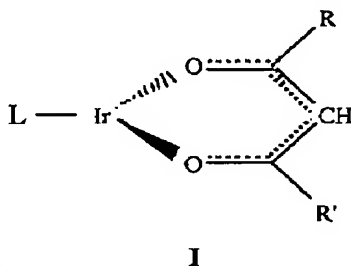
(ii) processing the deposited iridium into an iridium-based electrode element;

and

(B) depositing on the iridium-based electrode element a high temperature dielectric and/or ferroelectric material,

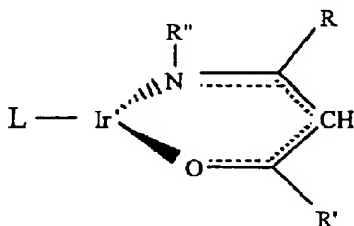
wherein the iridium-containing precursor comprises a composition selected from the group consisting of:

Lewis base stabilized Ir(I) β -diketonates of formula I:



wherein R and R' may be alike or different and may be H, aryl, perfluoroaryl, C₁ - C₆ alkyl, or C₁ - C₆ perfluoroalkyl, and L is a coordinating Lewis base; and

Lewis base stabilized Ir(I) β -ketoiminates of formula II:



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II

wherein R, R', and R'' are the same or different, and are independently selected from the group consisting of H, aryl, perfluoroaryl, C₁ - C₆ alkyl, or C₁ - C₆ perfluoroalkyl, and L is a coordinating Lewis base.

35-39. (Cancelled)

40. (Previously presented) The method of claim 31, wherein said organic solvent solution comprises a non-polar solvent selected from the group consisting of C₅-C₁₂ hydrocarbon alkanes and C₆-C₁₀ hydrocarbon aryls.

41. (Previously presented) The method of claim 34, wherein said organic solvent solution comprises a non-polar solvent selected from the group consisting of C₅-C₁₂ hydrocarbon alkanes and C₆-C₁₀ hydrocarbon aryls.

42-45. (Cancelled)

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